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they would be crowded upon each other and unite in a main trunk almost parallel to the Platte, like the lower Loup. The two causes, headwater erosion and Pliocene channel-filling, have worked together harmoniously. The former has swept the upper courses westward by a series of captures; the latter has crowded the mouths of the tributaries eastward and made them coalesce into a single large tributary. Thus a number of separate tributaries entering the Platte nearly at right angles have been wheeled into an oblique position, and evolved into one great tributary system, whose volume rivals that of the parent stream.

L. E. HICKS.

NOTES AND NEWS.

A TELEGRAM has been received announcing the illness of the Right Rev. John J. Keane, D.D., president of the Catholic University of America, and requesting that the date on which his address, before the Brooklyn Institute, on "Leo XIII. and the Social Problems of the Day" is to be given be postponed until Bishop Keane is able to come to Brooklyn to deliver it.

— Those who interest themselves in the aboriginal languages of Australia, will hear with much satisfaction that the vernacular of the natives of the MacDonnell range, South Australia, has been studied and committed to writing by their missionary, Rev. H. Kempe, who resides on the Finke River mission. His grammar and vocabulary occupy the first fifty-four pages of the Transactions of the Royal Society of South Australia (Vol. XIV., Part I., July, 1891, 12mo), a periodical edited by Professor Ralph Tate, Adelaide, W. C. Rugby, publisher.

— On the 9th of January representative scientists from the different parts of the State met in Austin, at the University of Texas, and organized a Texas Academy of Science. The officers are: president, Dr. Everhart, professor of chemistry, Austin; vice-president, Mr. Dumble, state geologist, Austin; treasurer, Professor Nagle, Agricultural and Mechanical college, Bryan; honorary secretary, Dr. Macfarlane, professor of physics, Austin; members of council, Dr. Halsted, professor of mathematics, Austin; Mr. von Streeruwitz, State Geological Survey; and Dr. Simonds, professor of geology, Austin.

— At the late annual meeting of the Iowa Academy of Science Mr. R. Ellsworth Call exhibited a remarkable specimen of the human hyoid bone, taken from a male subject. The basi-hyal was excessively irregular on the anterior surface with complete obliteration of the median vertical ridge; the anterior aspect was also somewhat concave. The right cerato-hyal was entirely wanting; the left was nearly as long as the thyro-hyal on its side, and was styliform in shape. It was completely ankylosed to the basi-hyal. On the side on which the cerato-hyal was wanting there was no evidence of any structure corresponding to the cerato-hyal and no indication of a synovial bursa or structure which would show that it had ever existed. In addition, the muscles of that side were attached to the basi-hyal, and this was believed to be the cause of the disappearance of the vertical median ridge and the cause of the roughened characters presented by the anterior surface.

— The second annual meeting of the Nebraska Academy of Sciences was held at the University of Nebraska, commencing Thursday, Dec. 31, 1891. The programme was as follows: the president's address, Specialization in Science (Dr. Kingsley being absent, the address was read by Dr. C. E. Bessey); The Slime Moulds of Crete, by A. T. Bell; The Evolution of Oxygen by Plants, by A. F. Woods; Additions to the Flora of Nebraska, by Professor G. D. Swezey; The Flora of the Black Hills, by Dr. C. E. Bessey; Metabolism, by Dr. H. B. Lowry; A Bacterial Disease of Corn, by H. B. Duncanson; Notes on the Flora of the Artesian Well at Lincoln, by J. R. Schofield. The officers for 1892 are: president, Dr. Charles E. Bessey, University of Nebraska, Lincoln; vice-president, Professor G. D. Swezey, Doane College, Crete; secretary, W. Edgar Taylor, State Normal School, Peru; custodian, Lawrence Bruher, University of Nebraska, Lin-

coln; trustees, Ex-Superintendent E. T. Hartley, Lincoln, and Dr. H. B. Lowry, Lincoln.

— In a paper presented to the Iowa Academy of Sciences, recently, Miss Minnie Howe, assistant in biology in the West Des Moines High School, described a series of experiments made by her at the Iowa State University during the winter and spring of 1891, together with their results. The problem which Miss Howe attempted to solve was the separation of the *Bacterium*, *Bacillus subtilis*, from the yeast plant *Saccharomyces cerevisiae* found together in ordinary soft yeast. She sought, also, to obtain pure cultures of each and to determine the part that each played in bread-making. It was found that bread made of sterilized flour and raised with the pure bacillus culture was light, but not as spongy as ordinary bread, sweet, close-grained, rather dark-colored, smelling and tasting much like "salt-raised" bread. Bread raised with the pure yeast culture under exactly the same conditions as the first was somewhat light, sweet, not so fine-grained nor as light as either ordinary bread or that made with bacteria. It had a peculiar insipid taste, with an odor unlike that of either of the other kinds. The result of these experiments seems to show that neither the yeast plant nor the bacillus alone will make as good bread as both together; that either without the other will produce alcoholic fermentation and cause bread to rise; that the bacillus is rather more efficient alone than the yeast. Further experimentation is projected along the same line, since no one set of experiments can be regarded as conclusive.

— "The influenza is once more in the air," says the *British Medical Journal*, "wafted hither and thither throughout the habitable world, a formidable, disabling, and fatal pandemic. Once more we are urgently asked on all sides, 'Have we a specific? Can we offer a cure?' It is the old delusion and the everlasting and unreasoning, but excusable, impatience for the miraculous and the impossible. 'Disease comes by Providence and goes by medicine;' that is a durable and popular formula. Of specifics for sale there are, of course, a legion. To sell them is the business of the quacks; the Matteis, the Holloways, the Morrises abound in specifics. There are a dozen available for cholera, for typhoid, for small-pox, for hydrophobia, for carcinoma — all equally plausible and equally useless except for commerce — and why not for influenza? But is there a specific for any disease? It is more than doubtful. The more we know of the nature and cause of disease, of its origin and life-history, the less we are inclined even to expect the discovery of specifics. Disease we know not as an entity, an enemy to be struck down with a club, or to be expelled by a drug, but as a process, the change of tissues and of fluids, the growth of a microbe, the proliferation of a cell, the secretion of a virus. We can modify the processes, we can lessen their virulent products, we can fortify against their worst effects; we can aid the evolution and perhaps guide it to health; sometimes we can arrest it; and often we can anticipate it. Thus we know how to ward off many diseases. Cholera, typhoid, small-pox, hydrophobia are enemies whom we can meet at the gate and forbid their approach. Deaths from either of these preventable diseases are, for the most part, violent deaths, inflicted by the ignorance of the people, the neglect of the sanitary authorities. *Populus vult mori*. In their search for specifics they parley with the enemy and lose their lives. Of influenza we know less than of most other infections; it is aerial, communicable from person to person, and along the lines of travel. For it, as for scarlet fever, we have only isolation as a preventive and palliatives as a treatment. Perhaps one day we shall know more; but there does not seem any likelihood of the discovery of a specific, and judging from numerous analogies it is far from certain that there is in this any ground for reproach. At any rate, it comes badly from a public and from a generation which is content to leave Great Britain without even one Institute of Preventive Medicine, and which is left to an appeal for funds from a Lister and a Roscoe to found such an institute — in which lies a chief hope for further life-saving and the advance of preventive and curative knowledge — while millions are lavished on weapons of destruction, or the more obvious means of charitable relief to physical suffering; and finally on the purchase of fraudulent 'specifics.'

— The Rain Convention at Millers, South Dakota, was largely attended, and as a result it is believed that twenty counties will accept the offer of a Kansas artificial rain company to produce rain during the crop season at \$500 a county, on the understanding that if there is no rain there will be no pay.

— Professor S. Ward Loper, last year lecturer on biology and geology in Trinity College, Hartford, and later connected with the United States Geological Survey in Colorado, has been appointed assistant to the Board of Management of the United States Exhibit at the World's Fair. He will select and classify fossils.

— It is expected that the Spicer Library of the Brooklyn Polytechnic will be catalogued and opened for students by May 1. \$10,000 had been expended for books and nearly 10,000 selected volumes have been placed upon its shelves, comprising the latest works in philosophy, law, history, science, and general literature. The entire cost of the new building, including land and equipment, has been estimated at \$350,000.

— The next meeting of the New York Section of the American Branch of the Society for Psychical Research will be held at Room 10, Columbia College, Law Building, Wednesday, Feb. 10, at 8 P.M. Professor William James will preside. The programme will be as follows: 1. Routine business. 2. Address by Professor James, on the Census of Hallucinations. 3. Report of some experiments in automatic writing, by B. F. Underwood (to be read by R. Hodgson, secretary of the American branch). There will be no admittance except by ticket. Special tickets are sent for members and associates. Other tickets, each of which will admit three persons, will enable members and associates to introduce their friends. Extra tickets may be obtained by members or associates on application to the secretary of the section, J. H. Hyslop, Columbia College, New York.

— The New York *Tribune* states that among the many proposed additions to Columbia College is a new school, to be known as the School of Pure Science. The announcement has met with the approval of the many friends of the college. Up to the present time the greater part of the scientific work has been done under the direction of the faculty of the School of Mines. In the new school the course will be three years, and will lead to the degree of Doctor of Philosophy. A student in the School of Arts will be able to spend his senior year in that department, take the degree of A.B., and at the end of the second and third years, respectively, in the new school, take the degrees of M.A. and Ph.D. The faculty in the School of Pure Science will be made up principally of the teachers in the School of Mines. The college proper will name a department, in accordance with the recommendations of Professor Charles F. Chandler, dean of the School of Mines, where pure scientific research can be carried on.

— The floating of the particles of cloud or fog, Herr von Frank of Graz seeks to explain (*Nature*, Jan. 14) by the presence of an envelope of aqueous vapor. As an approximate average value for the diameter of droplet with envelope he gives 0.7 mm. Supposing one cubic metre of cloud to hold 3 grammes of water, there would be an interval of 0.2 mm. between the envelopes. When clouds pass over the sun, the shadows of objects are perceptibly lengthened when the darkening occurs, and the author attributes this to refraction by the vapor envelopes. Again, it is difficult to see how water droplets in the form of cloud or fog could exist at such various temperatures, did not the vapor envelopes, as bad conductors of heat (compare Leidenfrost's drops), guard the droplets to some extent from evaporating and freezing. The minute particles must soon be dissipated by the sun's rays, if they were not in a kind of spheroidal state. This heating expands the envelopes, so that the cloud tends to rise; and various phenomena in nature may be thus explained (e.g. the rise of mist in Alpine valleys). Once more, liquid droplets have been observed (by Assmann) floating in air of $-10^{\circ}\text{C}^{\circ}$. On meeting a solid body these froze to ice-lumps without crystalline structure. Here, according to Herr von Frank, the vapor-envelopes prevent freezing till they are ruptured by the solid; the droplet thus loses the bad conductor of heat which protected it, and solidifies so quickly that no

crystals can form. The author supposes that with much aqueous vapor in the air larger drops form, the clouds floating lower; with less aqueous vapor, the drops are smaller and the clouds higher; the thickness of envelope, however, being the same for large and small drops under like conditions of temperature and pressure.

— A despatch to the New York *Tribune*, dated San Francisco, Jan. 24, states that H. W. Turner, a geologist of Washington, D.C., who for two years past, under the auspices of the California Division of Mining Geology, has been exploring the gold regions of the Sierras, arrived there the day before. Mr. Turner obtained from a gulch at Cave City, Calaveras County, a meteoric stone that will excite no little interest in the scientific world. It is almost as large as one's fist, and around a good portion of it is a solid film of gold. In one place the gold shows for about an inch square. Hitherto, in all discoveries, no meteoric iron has been found in connection with gold. "It demonstrates," Mr. Turner says, "that there is gold in the worlds of space from which meteoric iron has fallen. The specimen will be boxed and sent to Washington. Other pieces will probably be forwarded from Calaveras. I have examined it very carefully. It is extremely tough, and it is almost impossible to break it. In my opinion it has fallen from one of the stars. This demonstrates that there is gold in some of the stars, at least. I shall send this piece to the Smithsonian Institution."

— In the *Repertorium für Meteorologie* (Vol. XIV, No. 10), M. E. Berg discusses the frequency and geographical distribution of heavy daily rainfalls in European Russia, excepting Finland and the Caucasus. The observations, says *Nature*, refer to the years 1886-90, a rather short period; but in previous years there were not sufficient stations for such an investigation. The paper deals exclusively with falls of between 1.4 and 3 inches, distributed according to months, for the various governments of the empire. The results show that the frequency of heavy falls is subject to considerable fluctuation from year to year. The regions of greatest frequency occur on the south-east coast of the Crimea and the extreme south-west of the empire; on the eastern side of the Dnieper, the region extending to Smolensk and further northwards is also subject to very heavy falls. The northern limit of daily falls of over 3 inches, so far as relates to Central Russia, is the Government of Moscow. The yearly range of frequency reaches a maximum in summer, and, except in the south-eastern districts, the frequency in autumn is greater than in spring. In July and August the great falls extend over very large districts, and at other seasons are generally regulated by the course of the barometric depressions. The following is the average yearly frequency of the heavy falls for the whole empire, arranged according to seasons: winter, 0.8; spring, 14.3; summer, 106.4; autumn, 20.8. The maximum amount which fell in any day was over 8 inches, in Bessarabia.

— Thomas Whittaker has just ready a second edition of St. Clair's "Buried Cities and Bible Countries," the work on Palestine exploration that was well received last fall.

— E. & F. N. Spon & Co. expect to have ready very shortly the second edition, revised and enlarged, of "The Maintenance of Macadamized Roads," by T. Codrington; also the second edition, revised and enlarged, of "The Municipal and Sanitary Engineer's Handbook," by H. P. Boulnois.

— The prospectus is issued of a *Forstlich-naturwissenschaftliche Zeitschrift*, an organ for laboratories of forest-botany, forest-zoology, forest-chemistry, agriculture, and meteorology. It is to appear monthly in Munich, under the editorship of Dr. Carl Freiherr von Tubeuf; the first number is announced for the current month.

— A work on the great earthquake of Japan, by Professor John Milne and Professor W. K. Burton, is now in the press at Tokyo. It will be illustrated by 25 large photo-plates. For the sake of comparison, there will be two plates showing on a small scale the effects of earthquake in Italy and other countries. All the plates are to be on the finest quality of Japanese paper.